

A Simulation Algorithm for a Variable Number of Parallel Stations Queuing System of Head - of -Line Type

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Abstract

Since for a variable number of parallel stations, there are not analytic formulas, an algorithmic approach is very important in their study. Also, this queuing system class can't be simulated using an available discrete-event simulation package. In [2, 3], I proposed algorithms for a variable number, respectively for a constant number of working stations with First-Come-First-Served (FCFS), respectively Head-of-line (HOL) discipline. This paper proposes a simulation algorithm for a variable number parallel stations queuing system of HOL type. Also, one proves the polynomial complexity of the presented algorithm, based on the maximum number of comparisons estimation. By comparing the simulation results in the case of variable number of working stations, with the results of the simulator for the constant number of parallel working stations, with the same serving discipline, I conclude this paper.

Key Words: Queueing System, Algorithm, Variable Number of Parallel Stations, Head - of - Line Discipline.

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